Kee-1, Wayne, 09:15 AM 2/3/2003 -0500, RE: Barksdale EOC Operations /Lufkin Communications

From: "Kee-1, Wayne" < Wayne.M.Kee@nasa.gov>
To: "Jonathan B. Mullin " < mullin@hq.nasa.gov>

Subject: RE: Barksdale EOC Operations /Lufkin Communications Numbers

Date: Mon, 3 Feb 2003 09:15:26 -0500 X-Mailer: Internet Mail Service (5.5.2653.19)

Thanks Jon, appreciate your support.....Wayne

----Original Message----From: Jonathan B. Mullin

To: jlloyd@hq.nasa.gov; whill@hq.nasa.gov

Cc. boconnor@hq.nasa.gov; Wayne Kee; jpiaseck@hq.nasa.gov; Michael.B.Stevens@nasa.gov; robert.t.gaffney1@jsc.nasa.gov; prutledg@hq.nasa.gov; ilemke@hq.nasa.gov

Sent: 2/3/2003 8:46 AM

Subject: Barksdale EOC Operations /Lufkin Communications Numbers

Importance: High

Mr. Wayne Kee Emergency Preparedness Coordinator for the Kennedy Space Center is in place and operational at Barksdale Air Force Base. The Emergency Operations Center (EOC) work area to which he is assigned is Security and Emergency Services.

Barksdale EOC Numbers are (318) 456-7261/7259. Mr. Wayne Kee

Lufkin Communications Center (this center is NASA operated) with the following numbers: (936) 699-1017 or 1014/1015/1019. NASA Code X informs Code Q that any NASA person deployed in that area can be contacted by calling the aforementioned numbers.

Regards, Jon

Jonathan B. Mullin
Manager Operational Safety
Emergency Preparedness Coordinator
Headquarters National Aeronautics and Space Administration
Phone (202) 358-0589
FAX (202) 358-3104
"Mission Success Starts with Safety"

Phil Napala, 12:12 PM 2/3/2003 +0000, Orbital Debris Information

From: Phil Napala <pnapala@hq.nasa.gov>

To: <wfrazier@hq.nasa.gov>

CC: <prutledg@hq.nasa.gov>, <jlloyd@hq.nasa.gov>, <jmullin@hq.nasa.gov>,

<yolanda.y.marshall@nasa.gov>, <jlemke@hq.nasa.gov>

X-your-intranet: http://107team.intranets.com

X-Intranets-helpdesk: mailto:help@intranets.com

Date: Mon, 03 Feb 2003 12:12:42 GMT

X-mailer: AspMail 4.0.4.03 (SMT412E7EF)

Subject: Orbital Debris Information

X-OriginalArrivalTime: 03 Feb 2003 12:12:43.0210 (UTC) FILETIME=[8DEA7AA0:01C2CB7D]

Wayne,

The amount of debris from Shuttle and the collection effort is an opportunity to update our survive/demise models.

We need to think about what data we need to ask for in order to create a standard data sheet for all debris found.

Perhaps, we could get JSC and KSC to develop a palm pilot data collection checksheet to be passed out to all collection teams.

This information could be use to help determine STS107 failure mode and also aid in developing better ways to protect the public on future NASA missions both in estimating debris field and better design for minimal damage.

Phil

Jonathan B. Mullin, 08:09 AM 2/19/2003 -0500, Fwd: FW: DOT Requirements

X-Sender: jmullin@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2

Date: Wed, 19 Feb 2003 08:09:18-0500

To: wayne.kee-1@ksc.nasa.gov

From: "Jonathan B. Mullin" <jmullin@hq.nasa.gov>

Subject: Fwd: FW: DOT Requirements

Cc: james.o.cheek@usago.ksc.nasa.gov, robert.t.gaffney1@jsc.nasa.gov, Catherine.Angotti@hq.nasa.gov

Please, Assure that our field persons have this guidance in the Command Centers. Regards,

From: "Camomilli-1, Guy" <Guy.S.Camomilli@nasa.gov>

To: "Keprta, Sean" <sean.r.keprta1@jsc.nasa.gov>,

"Angotti, Cathy" <cangotti@hq.nasa.gov>,

"Mullin, Jonathan" <jmullin@mail.hq.nasa:gov>,

"Barry-1, William" < William S.Barry@nasa.gov>, "Gettleman-1, Alan" <Alan.G.Gettleman@nasa.gov>

Cc: "Roberts-1, Donald" < Donald Roberts-1@ksc.nasa.gov>

Subject: FW: DOT Requirements

Date: Tue, 18 Feb 2003 10:13:57 -0500

Importance: high

X-Mailer: Internet Mail Service (5.5.2656.59)

FYI

I asked Don Roberts to coordinate directly with Don Paniale on these requirements directly. Here's the information.

Guy Camomilli, MPH, CSP Senior Environmental Health Officer, **OCHMO Tenant Office** guy.camomilli-1@ksc.nasa.gov Voice (321) 867-1417 Fax (321) 867-8870

----Original Message----From: Roberts-1, Donald

Sent: Monday, February 17, 2003 3:19 PM

To: Camomilli-1, Guy, Paniale, Donald A

Cc: Cardinale-1, Michael; Creech-1, Joanne; Ouellette-2, Robert (SGS)

Subject: DOT Requirements

Guy/Don

Based on our conversations concerning the suspected infectious substances at Barksdale AFB and using a conservative approach on the hazard classification of the material, I have

outlined the general DOT requirements for transportion by public highway below.

- 1. The material is classified as a DOT hazardous material, hazard class 6, division 6.2 infectious substance
- 2: Shipping papers must include
- * The DOT shipping description "Infectious substances, affecting humans (in the parentheses you must identify the name(s) of the infectious substance(s). If there are more than (1) you must list at least (2)), 6.2, UN2814" (29 CFR 172.101, 172.202)
- Total quantity of hazardous material including unit of measure (49 CFR 172.202)
- * Signed shippers certification that states that the material is offered for transportation in accorance with the regulations. The regulations require a specific certification that is generally pre-printed on documents used for shipping hazardous materials. (49 CFR 172.204)
- * Emergency response telephone number. The number must be monitored at all times the material in transport and must be manned by a person knowledgeable of the hazardous material being shipped (49 CFR 172.604)
- * Emergency response information. The easiest way to comply with this requirement is to reference the guide number in the "Emergency Response Guidebook" and ensure that the driver carries the guidebook with the shipment or a copy of the specific guide is attached to the paperwork. The guide number is "158" for the haz material ID# UN2814. If you feel that additional emergency response information is needed include this in addition to the above information. (49 CFR 172.602)
- 3. Packaging must be comprised of a watertight primary receptacle (glass metal or plastic with a positive means of ensuring a leakproof seal such as heal seals or adhesive tape on screw caps.), a watertight secondary package, and an outer package that is capable of passing the tests specified in 49 CFR 173.609. I have never checked with container suppliers to see if they carry drums or boxes that meet this criteria but I am sure that they do.
- 4. An itemized list of the contents of the package must be enclosed between the secondary packaging and the outer packaging. (49 CFR 173.196)
- 5. Each outer packaging must be marked with the "Infectious Substance" label. (40 CFR 173.432)
- 6. Driver must have the appropriate hazardous materials training (49 CFR 172.700)
- 7. There is no DOT requirement for placarding the vehicle.

I'm sorry if this seems confusing but there are special requirements for infectious substances as well as the general requirements. I tried to provide only the information pertinent to your situation as I understand it. Please let me know if I can provide any additional support.

Don Roberts, CHMM Lead Engineer, Evaluation and Planning SGS Waste Management Phone: (321) 867-8642 Fax: (321) 867-9390

Jonathan B. Mullin
Manager Operational Safety
Emergency Preparedness Coordinator
Headquarters National Aeronautics and Space Administration
Phone (202):358-0589
FAX (202) 358-3104
"Mission Success Starts with Safety"

Kee-1, Wayne, 08:32 AM 2/19/2003 -0500, RE: Back from Texas Deployment

```
>speed units after my slide presentation on our INMARSAT capabilities?
 >Bill
 >
 >William K. Notley
 >RF Spectrum, COMSEC &
 > Emergency Communications Center Manager
 >NASA Ames Research Center
>Code JTN, MS 233-17
>Moffett Field, CA 94035-1000
>(650) 604-1415 Office
Jonathan B. Mullin
Manager Operational Safety
Emergency Preparedness Coordinator
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Phone (202) 358-0589
FAX (202) 358-3104
"Mission Success Starts with Safety"
```

Kee-1, Wayne, 08:32 AM 2/19/2003 -0500, RE: Back from Texas Deployment

From: "Kee-1, Wayne" < Wayne.M.Kee@nasa.gov>

To: "Jonathan B. Mullin" <jmullin@hq.nasa.gov>, Wayne.M.Kee@nasa.gov

Cc: bnotley@mail.arc.nasa.gov

Subject: RE: Back from Texas Deployment Date: Wed, 19 Feb 2003 08:32:44 -0500 X-Mailer: Internet Mail Service (5.5.2653.19)

No, what I said in the VITS was that we have 20 Iridium Sat. phones. Ten are now deployed to Texas with our MIT. I also said that Phil Bounds from HQ recently had some wireless cell phones that were secure voice. Our launch and landing office has IMARSAT units for the TAL sites.

Wayne M. Kee, CEM
NASA Emergency Preparedness Officer
John F. Kennedy Space Center
Mail Code: TA-E2, HQ Room 1147
Kennedy Space Center, FL 32899
Ph: 321-867-8723 Fax: 867-8102 (
Wayne M.Kee@nasa.gov

----Original Message----

From: Jonathan B. Mullin [mailto:jmullin@hq.nasa.gov]

Sent: Wednesday, February 19, 2003 8:03 AM

To: Wayne.M.Kee@nasa.gov Cc: bnotley@mail.arc.nasa.gov

Subject: Fwd: Back from Texas Deployment

Wayne, is there a need to provide some clarification to Bill Notley on this? I don't see a problem, but perhaps to clarify the details. Regards, Jon

>X-Sender: bnotley@mail.arc.nasa.gov

>X-Mailer: QUALCOMM Windows Eudora Version 5.1.1

>Date: Tue, 18 Feb 2003 14:36:59 -0800

>To: jmullin@mail:hq.nasa.gov

>From: Bill Notley <bnotley@mail.arc.nasa.gov>

>Subject: Back from Texas Deployment

>Jon,

>Just got back. Some interesting items to pass on. Didn't KSC say in the >10/15/02 emergency VITS that they had 20 INMARSATs, to include some of >them being "high-speed"? Apparently after I passed that on to the NASA >Command Center management they researched this with KSC and was told they >only had 9, and none were M4s (ISDN speed).

>I thought I remembered them saying that amount and citing having high

GAFFNEY, ROBERT T. (JSC-JA171) (NASA), 11:49 AM 2/7/2003 -0600, STS-107 Caller Information

From: "GAFFNEY, ROBERT T. (JSC-JA171) (NASA)" <robert.t.gaffney@nasa.gov> To: "Jon Mullin'" <Jmullin@hq.nasa.gov> '\

Subject: STS-107 Caller Information
Date: Fri, 7 Feb 2003 11:49:03 -0600
X-Mailer: Internet Mail Service (5.5.2448.0)

Jon, the attached forms contain the information sheet (JA14 INFORMATION SHEET FOR STS-107 REPORTS OF DEBRIS. the JSC EOC is using to collect information provided by any source via telephone or fax. When the other centers receive calls or walk-ins, it would be great if the report form could be used and then faxed directly to our operation in Houston at 281-483-5680. Before faxing the report, please call the JSC EOC at 281-483-9780 to get a log number. PLEASE NOTE: THE LOG NUMBER SHOULD ALSO BE ADDED TO ANY DEBRIS BAGS/ENVELOPES/PACKAGES AS WELL AS REFERENCED IN ANY

IMAGERY E-MAILS. So if a citizen or agency says they have some stuff and want to mail it or e-mail it to us, please give our teams a chance find it all again by keeping log numbers associated with reports. The General Information sheet (small text) contains the awareness training provided to call takers. The remaining sheet (also labeled General Information but in large text) contains the short version of what call takers are told, especially about how to treat information they are exposed to.

If citizens or local agencies want to turn in debris they have in their possession or have seen, please develop a process to accept it consistent with mishap investigation evidence and medical debris procedures and then mail it to the address on the bottom of the JA14 sheet. Imagery should be e-mailed to columbiaimages@nasa.gov. If the file is larger than 10MB, go to the website at http://www.jsc.nasa.gov/instructions.html.

Since this is a mishap investigation, please ask anyone who takes information to impound all REPEAT ALL paper associated with reports they take in accordance with NASA HQ or their center instructions.

Use the 281-483-9780 telephone number to contact the JSC EO Office if we can answer any questions.

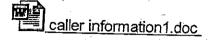
Thanks very much for your continued support,

Bob Gaffney JSC Emergency Preparedness Manager (281) 483-4249

Bob Gaffney JSC Emergency Preparedness Manager (281) 483-4249

GAFFNEY, ROBERT T. (JSC-JA171) (NASA), 11:49 AM 2/7/2003 -0600, STS-107 Caller Information

<<caller information.doc>>



Frank Mortelliti, 12:56 PM 2/6/2003 -0800, Re: Fwd: TEXAS Web Page for Columbia

X-Sender: fpmortel@mail2.jpl.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 5.1

Date: Thu, 06 Feb 2003 12:56:40 -0800

To: "Jonathan B. Mullin" <jmullin@hq.nasa.gov>

From: Frank Mortelliti < Frank.P.Mortelliti@jpl.nasa.gov> Subject: Re: Fwd: JEXAS Web Page for Columbia

At 03:25 PM 2/6/2003 -0500, you wrote: thank you Sir-

Gentlemen, this is what Texas put on their web for public officials. Guy Camomilli has a one pager, that I have asked him to forward to you. REgards, Jon

Date: Wed, 05 Feb 2003 16:21:55 -0500

To: lemke-john

From: "Jonathan B. Mullin" < jmullin@hq.nasa.gov>

Subject: TEXAS Web Page for Columbia

Cc: Lloyd_James, Wayne Kee <Wayne Kee_1@ksc.nasa.gov>,mike stevens,guy-camomilli,Angotti-Cathy,Dr. Rich Williams,Dr.Bill-Barry,Art Lee,Frazier_Wayne,Dan-Thomas,Richardson Pamela

Bcc: Mullin Jonathan

John, take a look at this one. The one page "guidance" which is limited in scope is on the web.

http://www.txdps.state.tx.us/dem/

Guy Camomilli is working to get his data on it, so that "better guidance." is available to help assure protection of the employee.

Regards, Jon

Jonathan B. Mullin

Manager Operational Safety

Emergency Preparedness Coordinator

Headquarters National Aeronautics and Space Administration

Phone (202) 358-0589

FAX (202) 358-3104

"Mission Success Starts with Safety"

Jonathan B. Mullin

Manager Operational Safety

Emergency Preparedness Coordinator

Headquarters National Aeronautics and Space Administration

Phone (202) 358-0589

FAX (202) 358-3104

"Mission Success Starts with Safety"

From: "Camomilli-1, Guy" < Guy.S. Camomilli@nasa.gov> To: "hcat@hq.nasa.gov" <hcat@hq.nasa.gov> Cc: "Angotti, Cathy" <cangotti@hq.nasa.gov>, "State of Texas EOC" <eoc@txdps.state.tx.us>, "Loyd, David" <dloyd@wstf.nasa.gov>, "Barry-1, William" < William.S.Barry@nasa.gov>, "Geyer-1, Bart" < Bart. Geyer-1@ksc.nasa.gov>, "Taffer-1, James" < James. Taffer-1@ksc.nasa.gov>, "Creech-1, Joanne" < Joanne.Creech-1@ksc.nasa.gov>, "Cardinale-1, Michael" < Michael .A. Cardinale@nasa.gov>, "Keprta, Sean" <sean.r.keprta1@jsc.nasa.gov>, "Gettleman-1, Alan" < Alan G. Gettleman@nasa.gov>, "Mullin, Jonathan" <jmullin@mail.hq.nasa.gov>, "est-opsdep@fema.gov" <est-opsdep@fema.gov>. "Lloyd, James" <illoyd@mail.hg.nasa.gov>. "Kee-1, Wayne" <Wayne.M.Kee@nasa.gov>, "Barry Hill (E-mail)" <barry.hill@barksdale.af.mil> Subject: Approved One-Page Shuttle Debris Fact Sheet Date: Thu, 6 Feb 2003 13:32:01 -0500 Importance: high X-Message-Flag: Follow up X-Mailer: Internet Mail Service (5.5.2653.19)

ATTENTION DEBRA ADDE:

The attached guidelines have been approved by the Chief Health and Medical Officer (Dr. R. Williams) for general dissemination to public service personnel.

Please give it a broad distribution from your command post. If you have any questions, please don't hesitate to call.

Thank you.

Guy Camomilli, MPH, CSP Senior Environmental Health Officer, OCHMO Tenant Office guy.camomilli-1@ksc.nasa.gov Voice (321) 867-1417 Fax (321) 867-8870



Guidelines for the Collection 3.doc

6 February 2003

Guidelines for the Collection of Space Shuttle Materials by Public Service Personnel

Unless you are certain that the piece of debris is not hazardous, do not disturb it in any way. Contact the NASA Recovery Team Command Post or the on-site health and safety representative.

Do not attempt to recover pieces of Shuttle debris if they contain fibrous materials, could contain liquids or compressed gases, or could contain explosive devices. Examples of these are: fuel tanks or cylinders, tubing, Shuttles tiles or other insulation.

Small pieces of metal, electronics, and other Shuttle debris may be handled with a minimum of Personal Protective Equipment (PPE) such as leather gloves. Debris suspected of containing Shuttle fuels should be examined upwind at a distance. Under all circumstances, the disturbance of debris should be minimized to avoid creating airborne particulates. Selection of proper protective clothing should be coordinated with the on-site health and safety representatives or incident commander on a daily basis.

Collected debris should be put into a plastic bag or other sealed container. Appropriate control zones should be established to prevent exposure to unprotected personnel, since valves and pressurized vessels of Shuttle fuel systems are designed to fail closed. Assume all tubing and related items to be contaminated with hazardous Shuttle fuel.

Parts and materials contaminated with hazardous Shuttle fuels, that have been put into a bag or other closed container (such as a car trunk), may slowly off-gas in the bag or container used for storage. Caution should be used when opening vehicle doors, trunks, plastic bags, and other containers that are known or, suspected to have been, contaminated with hazardous Shuttle fuels.

Personnel should wash their hands, forearms, and face prior to eating, drinking, or smoking. Personnel should shower or change cloths prior to going home when possible.

Pete Rutledge, 09:20 AM 2/6/2003 -0500, Your help is needed: Qs and As for Congressional Testin

X-Authentication-Warning: spinoza.public.hq.nasa.gov: majordom set sender to owner-code-quising -f

X-Sender: prutledg@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2

Date: Thu, 06 Feb 2003 09:20:22 -0500

To: code-q@lists.hq.nasa.gov

From: Pete Rutledge <prutledg@hq.nasa.gov>

Subject: Your help is needed: Qs and As for Congressional Testimony

Sender: owner-code-q@lists.hq.nasa.gov

Code Q staff members,

Michael Greenfield has been assigned, by the Administrator, the task of collecting anticipated questions (Qs) along with proposed answers (As) for Mr. O'Keefe's Congressional testimony, which will take place next Thursday, February 13. We have been tasked to collect safety and mission success (SMS) and safety and mission assurance (SMA) related Qs and As. We have to hand in our Qs and As by 9PM tomorrow, Friday, Feb. 7.

Note that by "SMS," we are referring to the Programs' implementation of our requirements (and perhaps other things) in order to achieve safe and successful missions. So some questions may be of this nature; i.e., not merely about what we do. "SMA" refers to those things that our SMA community does to assist NASA programs to achieve safety and mission success.

This task is something we can <u>all</u> help with. Please put your Congress-person hat on and think about what SMS/SMA-related questions pertaining to this mishap (directly or indirectly) might be asked of the Administrator. If you are the expert in the area of your question, please propose the right answer for it. If you are not, then just give us the question. We will keep your name associated with the question so that we can come back to you for more information, if needed.

<u>Please send your Qs, with or without As to Juanita Sandin</u>. She will create a running list of them. Later we will parse them into categories for inclusion in the master list of Qs and As.

Thank you for your help on this.

Pete

Peter J. Rutledge, Ph.D.
Director, Enterprise Safety and Mission Assurance Division
Acting Director, Review and Assessment Division
Office of Safety and Mission-Assurance
NASA Headquarters, Code QE, Washington, DC 20546

ph: 202-358-0579 FAX:202-358-2778

e-mail: pete.rutledge@hq.nasa.gov

Mission Success Starts with Safety!

X-Authentication-Warning: spinoza.public.hq.nasa.gov: majordom set sender to owner-code-qs using -f

X-Sender: mkowales@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2

Date: Thu, 06 Feb 2003 11:31:24 -0500

To: code-qe@lists.hq.nasa.gov, code-qs@lists.hq.nasa.gov

From: Mark Kowaleski <mkowales@hq.nasa.gov> Subject: Fwd: crew escape system studies list.ppt

Cc: Charles M.Chesser@msfc.nasa.gov, Thomas W.Hartline@msfc.nasa.gov

Sender: owner-code-qs@lists.hq.nasa.gov

Hi Folks,

This is a question from HCAT:

Does anyone have any of the following:

- Crew Escape Module Study, Rockwell, 1989
- Shuttle Evolution Crew Escape Study,
 Rockwell, 1991
- -Access to Space Study, NASA, 1994
- Space Transportation Architecture Study,
 NASA, 1999

X-Sender: whill@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2

Date: Thu, 06 Feb 2003 11:00:02 -0500

To: Mark Kowaleski <mkowales@hq.nasa.gov>

From: William Hill <whill@hq.nasa.gov>
Subject: crew escape system studies list.ppt

Think Safe, Be Safe

Mark Kowaleski, 11:31 AM 2/6/2003 -0500, Fwd: crew escape system studies list.ppt

NASA's New Vision: To improve life here, to extend life to there, to find life beyond.

NASA's new Mission Statement:
To understand and protect our home planet
To explore the universe and search for life
To inspire the next generation of explorers
.....as only NASA can.

jlemke, 08:49 AM 2/6/2003 -0500, Re: Team Questions

-X-Authentication-Warning: spinoza.public.hq.nasa.gov: majordom set sender to owner-code-qs-using -f

X-Sender: jlemke@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2

Date: Thu, 06 Feb 2003 08:49:15 -0500

To: code-qs@lists.hq.nasa.gov From: jlemke <jlemke@hq.nasa.gov> Subject: Re: Team Questions

Sender: owner-code-qs@lists.hq.nasa.gov

At 07:25 AM 2/6/2003 -0500, you wrote:

John am I on the team to develop questions?

Everybody is on the team to develop questions and answers. I will forward everyone the "topics' outline we developed to organize the Q&As when I get the annotated topics. The annotation (or highlighting) will identify where Q&As are most wanted.

More to follow.

John Lemke
Manager, System Safety Engineering
NASA HQ, Code QS
202-358-0567 FAX 358-3104
jlemke@hq.nasa.gov

"Mission success stands on the foundation of our unwavering commitment to safety"
Administrator Sean O'Keefe January 2003

James Lloyd, 08:25 AM 2/6/2003 -0500, Debris Tracking Form by State County2.xis

X-Sender: jlloyd@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2

Date: Thu, 06 Feb 2003 08:25:22 -0500

To: hcat@hq.nasa.gov

From: James Lloyd <jlloyd@hq.nasa.gov>

Subject: Debris Tracking Form by State County2.xls

Cc: prichard@hq.nasa.gov, jlemke <jlemke@hq.nasa.gov>, prutledg@hq.nasa.gov,

boconnor@mail.hq.nasa.gov, jmullin@mail.hq.nasa.gov

More refined table containing debris counts by state subdivded by county. I suspect someone may be recording this to a "pin" map but do not know for sure.



Debris Tracking Form by State County21.xls

James D. Lloyd (Jim)

Acting Deputy Associate Administrator Office of Safety and Mission Assurance Headquarters Room 5U11 desk phone 202-358-0557

fax 202-358-3104

"Mission success stands on the foundation of our unwavering commitment to safety" Administrator Sean O'Keefe January 2003

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Report Debris to NASA 281-483-4441

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James Lloyd, 07:41 PM 2/5/2003 -0500, Fwd: FW: RIV, Incident report Shuttle Debris

X-Sender: illoyd@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2 Date: Wed. 05 Feb 2003 19:41:42 -0500 To: hcat <hcat@hq.nasa.gov> From: James Lloyd <jlloyd@hq.nasa.gov> Subject: Fwd: FW: RIV, Incident report Shuttle Debris .Cc: prichard@hq.nasa.gov, jmullin@mail.hq.nasa.gov From: FEMA OPERATIONS CENTER < FEMA OPERATIONS.CENTER@fema.gov> To: Action Officer < ActionOfficer@fema.gov>, "AOC (E-mail)" <agstenos@hqda-aoc.army.pentagon.mil>, ARNGOPS < ARNGOPS@ngb.army.mil>, "BBS Submissions (E-mail) (E-mail)" <BBSSubmissions@fema.gov>, "Bothell MOC (E-mail) (E-mail)" <Bothell MOC@fema.gov>, "Brian Montgomery (E-mail)" <bri>brian.montgomery@fema.gov>, "Cameron, Bruce" <Bruce.Cameron@fema.gov>, Charles Stewart < Charles Stewart@navy.mil>, "D'Araujo, Jack" < Jack D'Araujo@fema.gov>, David Flèischman <David_Fleischman@hud.gov>; "Denton MOC (E-mail)" <Denton.MOC@fema.gov>, "Denver MOC (E-mail)" < Denver MOC@fema.gov>, DOE <rsp.div@hq.doe.gov>, "DOEHQEOC (E-mail)" <DOEHQEOC@OEM.DOE.GOV>, "DOI OPS CENTER (E-mail)" <doi_watch_center@ios.doi.gov>, "Earman, Margie" < Margie. Earman@fema.gov>, "Edward Massimo (E-mail 2)" <Edward.C.Massimo@HQ02.USACE.ARMY.MIL>, EMAC <emac@adem.state.ar.us>, "EPA-EOC HQ (E-mail)" <EOC.EPAHQ@epa.gov>, EST-DIR <EST-DIR@fema.gov>, "FCC Bonnie Gay (E-mail)" <bgay@fcc.gov>, **FEMADESKREPS** <FEMADESKREPS@fema.gov>, "GRACE. SHEFFEY (E-mail)" <GRACE.SHEFFEY@FNS.USDA.GOV>, "GSA Montgomery (E-mail)" <kathy.montgomery@gsa.gov>. "gsa: nsep@gsa. gov (E-mail)" <gsa.nsep@gsa.gov>, "Hess, Charles" < Charles Hess@fema.gov>, "Homeland Security (E-mail)" <ohscc@who.eop.gov>, "HUD McCarthy (E-mail)"

James Lloyd, 07:41 PM 2/5/2003 -0500, Fwd: FW: RIV, Incident report Shuttle Debris

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<bruce e._mccarthy@hud.gov>,
        "HUD Opper (E-mail)" <ian c. opper@hud.gov>...
        "James Lloyd (E-mail)" <JLloyd@hq.nasa.gov>,
        "Jerry Ostendorf (E-mail)"
       <jerry.ostendorf@emd.state.ia.us>,
       "Jonathan Mullin (E-mail)"
       <JMullin@hq.nasa.gov>,
       "Karen Maguire (E-mail)" <karen.maguire@usda.gov>,
       "Lowder, Michael" < Michael Lowder@fema.gov>,
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      "Nmci (E-mail)"
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 "Riddle, Margaret" < Margaret. Riddle@fema.gov>,
 "DOT Benini (E-mail)" < janet.benini@rspa.dot.gov>,
 "DOT Carney (E-mail)"
 "DOT Medigovich (E-mail)"
<br/>

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"DOT OPS 2 (E-mail)" < tioc-02@rspa.dot.gov>,
"HOWARD, EDWARDS (E-mail)" < HOWARD, EDWARDS@rspa.dot.gov>,
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James Lloyd, 07:41 PM 2/5/2003 -0500, Fwd: FW: RIV, incident report Shuttle Debris

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"USACE Acosta (E-mail)" <louis.a.acosta@HQ02.USACE.ARMY.MIL>,
        "USACE Aguilera (E-mail)" <karen.durham-aguilera@usace.army.mil>,
       "USACE Gilmore (E-mail)" < george.l.gilmore@usace.army.mil>,
       "USACE Hecker (È-mail)" <edward.j.hecker@usace.army.mil>,
       "USACE Irwin (E-mail)" <william.e.irwin@usace.army.mil>,
       "USACE Miller (E-mail)" < lizbeth.h.miller@usace.army.mil>,
       USACE OPS
       <ce-uoc@usace.army.mil>
  Subject: FW: RV, Incident report Shuttle Debris
  Date: Wed, 5 Feb 2003 16:03:42 -0500
  X-Mailer: Internet Mail Service (5.5.2656.59)
 > -----Original Message---
             Dupree, Annette
 > From:
 > Sent: Wednesday, February 05, 2003 4:12 PM
 > To: R4-INCIDENT-LIST; R06-ROC-ESF5; EST-ESF05PLNC; Evans, Charleen W
 > Subject: RIV, Incident report Shuttle Debris
 > Attached is the final incident report for Shuttle Debris. Future reports
 > on findings will be sent by e-mail and entries in the NEMIS Journal for
 > this incident.
 > <<Shuttle debris 02-05-03 - pm.doc>>
> Annette Dupree
> Emergency Management Program Specialist
> R4, Response and Recovery Division
> Response Operations Branch
> 402 S. Pinetree Blvd.
> Thomasville, GA 31792
> v: 229/225-4579
f: 229/225-4687
```



Shuttle debris 02-05-03 - pm1.doc

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Jonathan B. Mullin, 04:21 PM 2/5/2003 -0500, TEXAS Web Page for Columbia

X-Sender: jmullin@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2

Date: Wed, 05 Feb 2003 16:21:55 -0500

To: jlemke@hq.nasa.gov

From: "Jonathan B. Mullin" <jmullin@hq.nasa.gov>

Subject: TEXAS Web Page for Columbia

Cc: jlloyd@hq.nasa.gov, Wayne Kee <Wayne.Kee-1@ksc.nasa.gov>, michael.stevens-2@ksc.nasa.gov, guy.camomilli-1@ksc.nasa.gov, Catherine.Angotti@hq.nasa.gov, rwillia3@mail.hq.nasa.gov, william.barry-1@ksc.nasa.gov, alee@hq.nasa.gov, wfrazier@hq.nasa.gov,

dan.thomas@hq.nasa.gov, prichard@hq.nasa.gov

John, take a look at this one. The one page "guidance" which is limited in scope is on the web. http://www.txdps.state.tx.us/dem/

Guy Camomilli is working to get his data on it, so that "better guidance" is available to help assure protection of the employee.

Regards, Jon

Jonathan B. Mullin
Manager Operational Safety
Emergency Preparedness Coordinator
Headquarters National Aeronautics and Space Administration
Phone (202) 358-0589
FAX (202) 358-3104
"Mission Success Starts with Safety"

FEMA OPERATIONS CENTER, 04:03 PM 2/5/2003 -0500, FW: RIV, Incident report Shuttle Debris

```
From: FEMA OPERATIONS CENTER < FEMA OPERATIONS.CENTER@fema.gov>
To: Action Officer <ActionOfficer@fema.gov>,
    "AOC (E-mail)"
    <agstenos@hqda-aoc.armv.pentagon.mil>,
    ARNGOPS < ARNGOPS@ngb.army.mil>,
    "BBS Submissions (E-mail)" (E-mail)" <BBSSubmissions@fema.gov>,
    "Bothell MOC (E-mail) (E-mail)" < Bothell MOC @fema.gov>.
    "Brian Montgomery (E-mail)" <bri>brian.montgomery@fema.gov>,
    "Cameron, Bruce"
   <Bruce.Cameron@fema.gov>.
   Charles Stewart < Charles. Stewart@navy.mil>,
   "D'Araujo, Jack" < Jack. D'Araujo@fema.gov>,
   David Fleischman
   <David_Fleischman@hud.gov>,
   "Debbi Yamanaka (E-mail)".
  <dyamanaka@arrow-mountain.com>,
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  <Denton.MOC@fema.gov>,
  "Denver MOC (E-mail)" < Denver.MOC@fema.gov>,
  DOE
  <rsp.div@hq.doe.gov>, "DOEHQEOC (E-mail)" <DOEHQEOC@OEM.DOE.GOV>,
  "DOI OPS CENTER (E-mail)" <doi_watch_center@ios.doi.gov>,
  "Earman, Margie" < Margie. Earman@fema.gov>,
  "Edward Massimo (E-mail 2)"
  <Edward.C.Massimo@HQ02.USACE.ARMY.MIL>,
  EMAC <emac@adem.state.ar.us>,
  "EPA-EOC HQ (E-mail)" <EOC.EPAHQ@epa.gov>, EST-DIR <EST-DIR@fema.gov>,
  "FCC Bonnie Gay (E-mail)" <bgay@fcc.gov>,
  FEMADESKREPS
 <FEMADESKREPS@fema.gov>,
 "GRACE. SHEFFEY (E-mail)"
 <GRACE.SHEFFEY@FNS.USDA.GOV>,
 "GSA Montgomery (E-mail)"
 <kathy.montgomery@gsa.gov>.
 "gsa. nsep@gsa. gov (E-mail)"
<gsa.nsep@gsa.gov>.
 "Hess, Charles" < Charles. Hess@fema.gov>,
"Homeland Security (E-mail)" <ohscc@who.eop.gov>
"HUD McCarthy (E-mail)"
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"James Lloyd (E-mail)" <JLloyd@hq.nasa.gov>.
"Jerry Ostendorf (E-mail)"
<jerry.ostendorf@emd.state.ia.us>:
"Jonathan Mullin (E-mail)"
<JMullin@hq.nasa.gov>,
"Karen Maguire (E-mail)" <karen maguire@usda.gov>,
"Lowder, Michael" < Michael.Lowder@fema.gov>,
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"Maynard MOC (E-mail)"
        <Maynard.MOC@fema.gov>,
         "Naval District, Washington - Security and LE Dir."
        <Stewart.Charles@ndw.navy.mil>,
        "NCS (E-mail)" <NCS@NCS.GOV>.
        "NIGHT1 (E-mail)" < NIGHT1@USA.REDCROSS.ORG>,
       - -"Nmci (E-mail)"
        <NMClCommandCenter@eds.com>,
        "Nora Lewis (E-mail)" <nlewis@USAID.GOV>,
        "NORTHCOM LNO Todd Chamberlain (E-mail)"
       <todd.chamberlain@js.pentagon.mil>,
        "NORTHCOM Robert Price (E-mail)"
       <robert.price@NORTHCOM.mil>,
        "Paolin Hatch (E-mail)"
       <paolin.hatch@gsa.gov>.
        "ROSTOSKYC (E-mail)"
       <ROSTOSKYC@USA.REDCROSS.ORG>,
       "Russell, Barbara"
       <Barbara.Russell@fema.gov>,
       "Thomasville MOC (E-mail)"
      <Thomasville.MOC@fema.gov>,
       "Zensinger, Larry"
      <Larry.Zensinger@fema.gov>,
      "DOD/DOMS Lacrosse (E-mail)"
      <thomas.lacrosse@doms.army.mil>,
      "DOMS (E-mail)" <foxhole@doms.army.mil>,
      DOMS Sullivan < ricki.sullivan@doms.army.mil>,
      "Porter, Larry".
      <Larry.Porter@fema.gov>.
      "Riddle, Margaret" < Margaret. Riddle@fema.gov>,
      "DOT Benini (E-mail)" <janet.benini@rspa.dot.gov>,
      "DOT Carney (E-mail)"
      <br/>brian.carney@rspa.dot.gov>.
      "DOT Medigovich (E-mail)"
     <bill.medigovich@rspa.dot.gov>.
      "DOT OPS - 1 (E-mail)"
     <tioc-01@rspa.dot.gov>,
     "DOT OPS 2 (E-mail)" < tioc-02@rspa.dot.gov>,
     "HOWARD. EDWARDS (E-mail)" < HOWARD. EDWARDS@rspa.dot.gov>.
     "USACE Acosta (E-mail)" < louis.a.acosta@HQ02.USACE.ARMY.MIL>,
     "USACE Aguilera (E-mail)" <karen.durham-aguilera@usace.army.mil>,
     "USACE Gilmore (E-mail)" < george I.gilmore@usace.army.mil>,
     "USACE Hecker (E-mail)" <edward.j.hecker@usace.army.mil>,
     "USACE Irwin (E-mail)"_<william.e.irwin@usace.army.mil>,
     "USACE Miller (E-mail)" < lizbeth.h.miller@usace.army.mil>,
    USACE OPS
   <ce-uoc@usace.army.mil>
Subject: FW: RIV, incident report Shuttle Debris
```

FEMA OPERATIONS CENTER, 04:03 PM 2/5/2003 -0500, FW: RIV, Incident report Shuttle Debris

Date: Wed, 5 Feb 2003 16:03:42 -0500 X-Mailer: Internet Mail Service (5.5.2656.59)

- > -----Original Message-----> From: Dupree, Annette
- > Sent: Wednesday, February 05, 2003 4:12 PM
- > To: R4-INCIDENT-LIST; R06-ROC-ESF5; EST-ESF05PLNC; Evans, Charleen W
- > Subject: RIV, Incident report Shuttle Debris
- > Attached is the final incident report for Shuttle Debris. Future reports
- > on findings will be sent by e-mail and entries in the NEMIS Journal for
- > this incident.
- > <<Shuttle debris 02-05-03 pm.doc>>
- > Annette Dupree
- > Emergency Management Program Specialist
- > R4, Response and Recovery Division
- > Response Operations Branch
- > 402 S. Pinetree Blvd.
- > Thomasville, GA 31792
- > v: 229/225-4579
- > f: 229/225-4687
- ~

Shuttle debris 02-05-03 - pm.doc

NAKAMURA, STACEY T. (JSC-NS) (NASA), 11:34 AM 2/5/2003 -0600, RE: updated version of the gr

From: "NAKAMURA, STACEY T. (JSC-NS)-(NASA)" <stacey.t.nakamura@nasa.gov>

To: "Camomilli-1, Guy" <Guy.S.Camomilli@nasa.gov>

Cc: "Angotti, Cathy" < cangotti@hq.nasa.gov>,

"Mullin, Jonathan"

<imullin@mail.hq.nasa.gov>

Subject: RE: updated version of the general guidelines for field team PPE

Date: Wed, 5 Feb 2003 11:34:12 -0600 X-Mailer: Internet Mail Service (5.5.2653.19)

My error - i'm tired....

we don't know who authorized it. we all can review the process after things settle down. the important thing will be to get the additional info / pictures from WSTF.

thx.

Stacey T. Nakamura Phone: (281) 483-4345 Fax: (281) 483-6275

----Original Message----

From: Camomilli-1, Guy [mailto:Guy.S.Camomilli@nasa.gov]

Sent: Wednesday, February 05, 2003 10:37 AM To: NAKAMURA, STACEY T. (JSC-NS) (NASA)

Cc: Angotti, Cathy, Mullin, Jonathan

Subject: FW: updated version of the general guidelines for field team

PPE

Importance: High

Stacey,

If I understood Jon correctly, it has been implied that a one-page document entitled "Guidelines for the Collection of Space Shuttle Material by Public Service Personnel" originated with our OCHMO tenant office at KSC. This is not true. The information that we worked on and provided to Wayne Kee, and the HCAT is attached and provided as text below.

Hope this helps.

Guy Camomilli, MPH, CSP Senior Environmental Health Officer, OCHMO Tenant Office guy.camomilli-1@ksc.nasa.gov Voice (321) 867-1417

Fax (321) 867-8870

- > ----Original Message-
- > From:

Camomilli-1, Guy

> Sent:

Tuesday, February 04, 2003 3:21 PM

Angotti, Cathy; 'Barry Hill (E-mail)'; 'Loyd, David'; 'Williams, > To: Rich'; Barry-1, William; Geyer-1, Bart; 'hcat@hq.nasa.gov'; Keprta, Sean; Mullin, Jonathan; Lloyd, James

> Cc:

Cardinale-1, Michael, Creech-1, Joanne, Taffer-1, James > Subject: FW: updated version of the general guidelines for field team

PPE

> Importance:

High

>

> All,

- > Jim Taffer, Joanne Creech, and Mike Cardinale have provided excellent guidance for debris collection PPE. Please take a look at the attached file. The information is also provided as text (in the event that you're unable to open the file).
- > Please remember that these are guidelines that are to be used within the context of specific field conditions, and that the industrial hygienist or environmental health field representative must use their professional judgment in implementing them.
- > Also please remember that is more than one right way to do this. There are other organizations with other procedures that are collecting debris; and that they're experienced with the associated hazards. Their procedures may be slightly different from these; but as good in controlling the hazards.

> Thank you.

2003

4 February

> GENERAL GUIDELINES FOR PERSONNEL HEALTH PROTECTION FOR FIELD TEAMS DURING

RECOVERY OF SHUTTLE DEBRIS

> The following recommendations are provided for personnel health protection for field teams assigned to pick up debris / materials associated with the Columbia accident. These protection guidelines are for activities including investigation, recovery, and cleanup operations. Additional guidelines may be provided for other downstream activities such as working in Shuttle debris staging areas and/or handling cataloged items.

- > The appropriate personal protective equipment (PPE) to be used by personnel will depend on the task to be performed and proximity to debris containing hazardous material. A tiered approach to protective clothing selection is provided to allow for ease of implementation. The proper protective clothing for preventing /minimizing potential personnel exposure to hazardous materials and adequate control areas should be coordinated with the on-site health and safety supervisor. Coordinate with the NASA Recovery Team Command Post if there are any questions with this guidance. The on-site NASA JBOSC Environmental Health/Industrial Hygiene Office (EH/IH) representative supporting the recovery team may be contacted through the NASA Recovery Team Command Post if additional technical guidance is requested.
- > a. Level A This level of protection is to be used when exposure (potential for contact with Liquid Propellants) to hypergolic propellants (e.g. hydrazines and dinitrogen tetroxide) is a hazard. Only NASA/Contractor qualified employees should enter areas with hypergolic propellants present in EPA Level A equivalent protection with positive pressure SCBA suit/gloves made with hypergolic propellant protective /compatible materials or Propellant Handlers Ensemble (PHE),(SCAPE). Consult with NASA Recovery Team Command Post.
- > a. Level B This level of protection can be used during entry into an area where potential exists for depleted oxygen levels or when ammonia, Freon, hypergolic vapor or other inhalation hazards are present.>
- > a. Level C1 Personnel should use full face respirators equipped with High Efficiency Particulate Air (HEPA) filters, Disposable coveralls (hooded Tyvek suits over coveralls), Cut-resistant leather gloves, Disposable coverall sleeves should be taped over gloves to prevent fibers from lodging under clothing, Disposable booties or boot covers over safety shoes, and an article of clothing to protect neck area under face. Examples of these tasks would include uncontrolled inhalation hazard from dusty material (e.g. handling friable TPS materials or burned graphite composite in which dust is produced).
- > Note: Level C1 may be downgraded to Level C2 if dust is suppressed by using wetting agents or encapsulants, (e.g. spray-on floor wax and glue).
- > Level C2 Personnel should use disposable respirators (HEPA, N100 or N95), disposable coveralls (Tyvek suits), heavy leather gloves, disposable booties or boot covers over safety shoes, and safety glasses with side shields or goggles.
- > Level C2 protection would be for tasks with less potential for disturbance of composite-containing debris. Examples of these tasks would include picking up larger pieces of wetted TPS debris or disturbing it in

any other way.

>

- > a. Level D Personnel should use leather gloves and a disposable dust mask or N95 (optional). Level D protection would be for tasks with minimal potential for debris disturbance (dust unlikely). Examples would include picking up metal fragments or small pieces of TPS material.
- > Proper protective clothing requirements should be coordinated with the on-site health and safety representatives on a daily basis. Under all circumstances, the disturbance of debris should be minimized to avoid creating airborne particulates.
- > The following materials may pose potential health hazards when encountering Shuttle debris:

>

> 1. Metals

- > * Aluminum Boron Truss
- > * These materials should be in a solid minimum hazard state.
- > * This material must be inhaled or ingested to exhibit toxic effects.
- > * Handle with leather gloves. Wash with soap and water if skin contact.
- > * Level D PPE is recommended.
- > * Epoxy-Boron Truss
- > * These materials should be in a solid minimum hazard state.
- > * This material must be inhaled or ingested to exhibit toxic effects.
- > * Handle with leather gloves. Wash with soap and water if skin contact.
- > * Level D PPE is recommended.
- > * Beryllium
- > * Found in windshield frame and external tank doors
- > * Must be inhaled or ingested to be a hazard
- > * Should be found in a solid minimum hazard state.
- > * Handle with leather gloves. Wash with soap and water if skin contact.
- > * Level D PPE is recommended. If material is oxidized, PPE level upgrade should be considered.
- > 1. Hypergolic Propellants
- > Debris suspected of containing hypergolic propellants should be examined upwind at a distance. Items potentially containing liquids or vapors of hypergolic propellants would probably be tubing, thrusters, piping, tubing/piping fittings, and vessels. If hypergolic propellants are present, the debris may be approached by NASA/Contractor qualified personnel in Level A or equivalent. Calibrated monitoring equipment should be used to determine hypergolic vapor concentrations. If no hypergolic vapors are detected, the site health and safety supervisor may downgrade PPE taking into consideration the pH of the material.

NAKAMURA, STACEY T. (JSC-NS) (NASA), 11:34 AM 2/5/2003 -0600, RE: updated version of the go

- > Parts and materials contaminated with propellants that have been > "> bagged> "> may off-gas slowly in the bag or container used for storage and shipping. Caution should be used when opening bags known or suspected to have been contaminated with propellants. Open the bags under a laboratory fume hood, and/or with proper PPE.
- > * Hydrazine, monomethyl hydrazine, and Nitrogen tetroxide (Hypergolic Propellants)
- > * Forward and Aft reaction control system (RCS), Auxiliary Power Unit (APU), and Orbiter Maneuvering System (OMS)>
- > * > Only NASA/Contractor qualified employees should enter areas with hypergolic propel> lants present in OSHA Level A Protection with suit/gloves made with hypergolic propellant protective /compatible materials or Propellant Handlers Ensemble (PHE), (SCAPE)
- > * Valves are designed to fail closed, assume all tubing to be contaminated with hypergolic propellant.
- > * Appropriate control zones should be established to prevent exposure to unprotected personnel. Vessels under pressure should also be taken into consideration while establishing the control zone.
- > * 3. Cryogens
- > * Liquid Hydrogen (LH2)and Liquid Oxygen (LO2)
- > * Heavy leather gloves are appropriate PPE for handling.
- > * See on-site Health and Safety supervisor for site-specific recommendations.
- > * 4. Refrigerants
- > * Ammonia
- > * Orbiter coolant system. Ammonia vapors may be irritating to eyes and upper respiratory system.
- > * Utilize Level B (Self-contained breathing apparatus and skin protection) for unknown concentrations during initial characterization.
- > * Consult with on-site health and safety representative for appropriate PPE.
- > * Dichloromonofluoromethane (Freon 21)
- > * Orbiter coolant system. May displace oxygen in enclosed or poorly ventilated areas.
- > * Utilize Level B (Self-contained breathing apparatus and compatible gloves) in enclosed areas.
- > * Consult with on-site safety representative for appropriate PPE.
- > 5. Thermal Protection System (TPS) Materials:
- > * Silica and other refractory fibers may be found in Shuttle tiles, blankets used on exterior Shuttle surfaces and payload bay, gap fillers, thermal barriers, heat shields.
- > * The principal acute hazards of TPS materials are eye, skin and upper respiratory (depending upon particle size) tract irritation. Irritation and

abrasion, similar to that of glass fibers may occur.

- > * The level of PPE should be based on the task being performed, friability of the material and environmental conditions. Coordinate proper selection with site health and safety supervisor.
- > 5. Helium Pressure Systems
- > * Forward and Aft Reaction Control System (RCS) 13 gallon helium tanks (6 tanks) and Orbiter Maneuvering System (OMS) 130 gal helium tanks (2 tanks)
- > * See site health and safety supervisor for safety precautions.
- > 5. Ordnance
- > * Ordnance is located in the following areas of the Shuttle: Wheel well in main landing gear, Drag chute compartment, Main hatch, KU-Band Antenna, Emergency Egress Window, Fire extinguisher tanks
- > * See site health and safety supervisor for safety precautions.
- > 5. Other Chemicals
- > Recovery teams should remember that various sizes of pressurized vessels used for Shuttle experiments may be present in the debris. These vessels, although small, may be highly pressurized, and should be handled with care. Coordinate with health and safety supervisor.
- > GENERAL RECOMMENDATIONS:
- > 1. Appropriate decontamination procedures must be followed to prevent transport of dusty debris from the work area. Donning/ doffing PPE should be performed in a clean area. Procedure to be posted at site.
- > 2. If debris is contaminated with carbon/graphite fibers (burned graphite/composite), personnel exiting a controlled zone should use a wet/dry HEPA vacuum (if present) to decontaminate outer clothing prior to removal. Procedure to be posted at site.
- > 3. Contaminated PPE should be disposed of in appropriate bags/containers.
- > 4. Respirators should be wet wiped on the outside and wipes disposed of properly. Respirators may not be left in potentially contaminated areas. The inside of the respirator should not be exposed to composite materials. This could result in skin irritation around facial area. Additionally, gloves should not be left in potentially contaminated areas. Disposable respirators should be discarded in appropriate bags/containers. Follow normal respirator cleaning and disinfecting protocol.
- > 5.> Personnel should wash their hands and face when leaving a controlled work area and should wash their hands, forearms, and face prior to eating, drinking, or > smoking. Personnel should shower prior to going

home when possible. Where possible a portable eyewash providing fifteen minutes of flow should be on site.

> 6. Respirator filters should be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance (e.g., causing discomfort to the wearer). Use of protective clothing, including respiratory protection, must be used in accordance with the manufacturer's recommendations. Use of respiratory protection must be in accordance with 29 CFR 1910.134. If other respiratory protection such as organic vapor, ammonia, or other applications are needed consult with an industrial hygienist.

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> Guy Camomilli, MPH, CSP
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- > Senior Environmental Health Officer.
- > OCHMO Tenant Office
- > guy.camomilli-1@ksc.nasa.gov
- > Voice (321) 867-1417
- > Fax (321) 867-8870
- > ----Original Message----
- > From: Creech-1, Joanne
- > Sent: Tuesday, February 04, 2003 2:44 PM
- Cardinale-1, Michael; Camomilli-1, Guy; Kee-1, Wayne; Kleinbrook, > To: James W
- Taffer-1, James; Bergstrom-1, Gary > Cc:
- > Subject: updated version of the general guidelines for field team PPE
- >> << Guidelines for Shuttle Columbia Recovery team helath protection .doc>>
- > Joanne W. Creech, CIH > Manager, Environmental Health & Services
- > Comprehensive Health Services, Inc.

X-Sender: jmullin@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2

Date: Wed, 05 Feb 2003 12:31:10 -0500

To: jpiaseck@hq.nasa.gov

From: "Jonathan B. Mullin" < jmullin@hq.nasa.gov>

Subject: Fwd: FW: updated version of the general guidelines for field

team PPE

Cc: michael.stevens-2@ksc.nasa.gov

John, incase your teams would like to know the recommended personnel protective equipment guidance provided by a team of "Industrial Hygienists" the enclosed is provided. The source of the guidance is Code AM. Regards, Jon

X-Sender: jmullin@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2

Date: Wed, 05 Feb 2003 12:07:11 -0500

To: jlemke@hq.nasa.gov

From: "Jonathan B. Mullin" <jmullin@hq.nasa.gov>

Subject: FW: updated version of the general guidelines for field team

PPE

Cc: Wayne Kee <Wayne,Kee-1@ksc.nasa.gov>, whill@hq.nasa.gov, prutledg@hq.nasa.gov, Catherine.Angotti@hq.nasa.gov, rwillia3@mail.hq.nasa.gov, snakamur@ems.jsc.nasa.gov, HCAT@hq.nasa.gov, jlloyd@hq.nasa.gov, prichard@hq.nasa.gov, wfrazier@hq.nasa.gov, dan.thomas@hq.nasa.gov, dloyd@wstf.nasa.gov

John, for the NASA Record, the enclosed General Guidelines were issued by Code AM. Both Codes AM and QS are unsure of where the other, **not attached to this correspondence**, "one page guidance" came from to advise Public Service Personnel. The Code AM enclosed guidance is more reliable guidance to Public Service Personnel due to the fact that a "team of Industrial Hygienists" have developed this product. Regards, Jon

4 February 2003

- > GENERAL GUIDELINES FOR PERSONNEL HEALTH PROTECTION FOR FIELD TEAMS DURING RECOVERY OF SHUTTLE DEBRIS
- > The following recommendations are provided for personnel health protection for field teams assigned to pick up debris / materials associated with the Columbia accident. These protection guidelines are for activities including investigation, recovery, and cleanup operations. Additional guidelines may be provided for other downstream activities such as working in Shuttle debris staging areas and/or handling cataloged items.
- > The appropriate personal protective equipment (PPE) to be used by personnel will depend on the task to be performed and proximity to debris containing hazardous material. A tiered approach to protective clothing selection is provided to allow for ease of implementation. The proper protective clothing for preventing /minimizing potential personnel exposure to hazardous materials and adequate control areas should be coordinated with the on-site

health and safety supervisor. Coordinate with the NASA Recovery Team Command Post if there are any questions with this guidance. The on-site NASA JBOSC Environmental Health/Industrial Hygiene Office (EH/IH) representative supporting the recovery team may be contacted through the NASA Recovery Team Command Post if additional technical guidance is requested.

- > a. Level A This level of protection is to be used when exposure (potential for contact with Liquid Propellants) to hypergolic propellants (e.g. hydrazines and dinitrogen tetroxide) is a hazard. Only NASA/Contractor qualified employees should enter areas with hypergolic propellants present in EPA Level A equivalent protection with positive pressure SCBA suit/gloves made with hypergolic propellant protective /compatible materials or Propellant Handlers Ensemble (PHE),(SCAPE). Consult with NASA Recovery Team Command Post.
- > a. Level B This level of protection can be used during entry into an area where potential exists for depleted oxygen levels or when ammonia, Freon, hypergolic vapor or other inhalation hazards are present.>
- > a. Level C1 Personnel should use full face respirators equipped with High Efficiency Particulate Air (HEPA) filters, Disposable coveralls (hooded Tyvek suits over coveralls), Cutresistant leather gloves, Disposable coverall sleeves should be taped over gloves to prevent fibers from lodging under clothing, Disposable booties or boot covers over safety shoes, and an article of clothing to protect neck area under face. Examples of these tasks would include uncontrolled inhalation hazard from dusty material (e.g. handling friable TPS materials or burned graphite composite in which dust is produced).
- Note: Level C1 may be downgraded to Level C2 if dust is suppressed by using wetting agents or encapsulants, (e.g. spray-on floor wax and glue).
- > Level C2 Personnel should use disposable respirators (HEPA, N100 or N95), disposable coveralls (Tyvek suits), heavy leather gloves, disposable booties or boot covers over safety shoes, and safety glasses with side shields or goggles.
- > Level C2 protection would be for tasks with less potential for disturbance of compositecontaining debris. Examples of these tasks would include picking up larger pieces of wetted TPS debris or disturbing it in any other way.
- > a. Level D Personnel should use leather gloves and a disposable dust mask or N95 (optional). Level D protection would be for tasks with minimal potential for debris disturbance (dust unlikely). Examples would include picking up metal fragments or small pieces of TPS material.
- > Proper protective clothing requirements should be coordinated with the on-site health and safety representatives on a daily basis. Under all circumstances, the disturbance of debris should be minimized to avoid creating airborne particulates.
- > The following materials may pose potential health hazards when encountering Shuttle debris:

- > 1. Metals
- Aluminum Boron Truss
- These materials should be in a solid minimum hazard state.
- This material must be inhaled or ingested to exhibit toxic effects.
- Handle with leather gloves. Wash with soap and water if skin contact.
- Level D PPE is recommended.
- **Epoxy-Boron Truss**
- These materials should be in a solid minimum hazard state.
- This material must be inhaled or ingested to exhibit toxic effects.
- Handle with leather gloves. Wash with soap and water if skin contact.
- Level D PPE is recommended.
- Beryllium

>

- Found in windshield frame and external tank doors
- Must be inhaled or ingested to be a hazard
- Should be found in a solid minimum hazard state.
- Handle with leather gloves. Wash with soap and water if skin contact.
- Level D PPE is recommended. If material is oxidized, PPE level upgrade should be considered.
- · . > 1. Hypergolic Propellants
- > Debris suspected of containing hypergolic propellants should be examined upwind at a distance. Items potentially containing liquids or vapors of hypergolic propellants would probably be tubing, thrusters, piping, tubing/piping fittings, and vessels. If hypergolic propellants are present, the debris may be approached by NASA/Contractor qualified personnel in Level A or equivalent. Calibrated monitoring equipment should be used to determine hypergolic vapor concentrations. If no hypergolic vapors are detected, the site health and safety supervisor may downgrade PPE taking into consideration the pH of the material.
- > Parts and materials contaminated with propellants that have been > "> bagged> "> may offgas slowly in the bag or container used for storage and shipping. Caution should be used when opening bags known or suspected to have been contaminated with propellants. Open the bags under a laboratory fume hood, and/or with proper PPE. >
- > * Hydrazine, monomethyl hydrazine, and Nitrogen tetroxide (Hypergolic Propellants)
- Forward and Aft reaction control system (RCS), Auxiliary Power Unit (APU), and Orbiter Maneuvering System (OMS)>
- > Only NASA/Contractor qualified employees should enter areas with hypergolic propel> lants present in OSHA Level A Protection with suit/gloves made with hypergolic propellant protective /compatible materials or Propellant Handlers Ensemble (PHE), (SCAPE)
- Valves are designed to fail closed, assume all tubing to be contaminated with hypergolic propellant.
- Appropriate control zones should be established to prevent exposure to unprotected personnel. Vessels under pressure should also be taken into consideration while establishing the control zone.
- Cryogens

- > * Liquid Hydrogen (LH2)and Liquid Oxygen (LO2)
- > * Heavy leather gloves are appropriate PPE for handling.
- > * See on-site Health and Safety supervisor for site-specific recommendations.
- > * 4. Refrigerants
- > * Ammonia
- >* Orbiter coolant system. Ammonia vapors may be irritating to eyes and upper respiratory system.
- > * Utilize Level B (Self-contained breathing apparatus and skin protection) for unknown concentrations during initial characterization.
- > * Consult with on-site health and safety representative for appropriate PPE.
- > * Dichloromonofluoromethane (Freon 21)
- > * Orbiter coolant system. May displace oxygen in enclosed or poorly ventilated areas.
- > * Utilize Level B (Self-contained breathing apparatus and compatible gloves) in enclosed areas.
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- > 5. Thermal Protection System (TPS) Materials:
- > * Silica and other refractory fibers may be found in Shuttle tiles, blankets used on exterior Shuttle surfaces and payload bay, gap fillers, thermal barriers, heat shields.
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- > * The level of PPE should be based on the task being performed, friability of the material and environmental conditions. Coordinate proper selection with site health and safety supervisor.
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- > * See site health and safety supervisor for safety precautions.
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- > Recovery teams should remember that various sizes of pressurized vessels used for Shuttle experiments may be present in the debris. These vessels, although small, may be highly pressurized, and should be handled with care. Coordinate with health and safety supervisor.
- > GENERAL RECOMMENDATIONS:
- > 1. Appropriate decontamination procedures must be followed to prevent transport of dusty

debris from the work area. Donning/ doffing PPE should be performed in a clean area. Procedure to be posted at site.

- > 2. If debris is contaminated with carbon/graphite fibers (burned graphite/composite), personnel exiting a controlled zone should use a wet/dry HEPA vacuum (if present) to decontaminate outer clothing prior to removal. Procedure to be posted at site.
- > 3. Contaminated PPE should be disposed of in appropriate bags/containers.
- > 4. Respirators should be wet wiped on the outside and wipes disposed of properly. Respirators may not be left in potentially contaminated areas. The inside of the respirator should not be exposed to composite materials. This could result in skin irritation around facial area. Additionally, gloves should not be left in potentially contaminated areas. Disposable respirators should be discarded in appropriate bags/containers. Follow normal respirator cleaning and disinfecting protocol.
- >5.> Personnel should wash their hands and face when leaving a controlled work area and should wash their hands, forearms, and face prior to eating, drinking, or > smoking. Personnel should shower prior to going home when possible. Where possible a portable eyewash providing fifteen minutes of flow should be on site.
- > 6. Respirator filters should be replaced whenever they are damaged, soiled, or causing noticeably increased breathing resistance (e.g., causing discomfort to the wearer). Use of protective clothing, including respiratory protection, must be used in accordance with the manufacturer's recommendations. Use of respiratory protection must be in accordance with 29 CFR 1910.134. If other respiratory protection such as organic vapor, ammonia, or other applications are needed consult with an industrial hygienist.
- > Guy Camomilli, MPH, CSP
- > Senior Environmental Health Officer,
- > OCHMO Tenant Office
- > guy.camomilli-1@ksc.nasa.gov
- > Voice (321) 867-1417
- > Fax (321) 867-8870

Jonathan B. Mullin

Manager Operational Safety

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"Mission Success Starts with Safety"

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"Mission Success Starts with Safety"



Guidelines for Shuttle Columbia Recovery team helath protection 111 doc

Jonathan B. Mullin, 10:48 AM 2/5/2003 -0500, 107 Board Questions

X-Sender: jmullin@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3.2

Date: Wed. 05 Feb 2003 10:48:09 -0500

To: jlemke@hg.nasa.gov

From: "Jonathan B. Mullin" < imullin@hq.nasa.gov>

Subject: 107 Board Questions

Cc: tom.whitmeyer@hq.nasa.gov, prutledg@hq.nasa.gov, prichard@hq.nasa.gov

Consider the following for SMART Investigation Questions:

Palmdale:

1. Call former SMA from Palmdale Space Shuttle who can comment on workmanship, MRB activities, open paper, successes, schedules, etc. during Orbiter upgrades and maintenance.

2. Consider requesting lists of Federal and Contractors who have worked on NASA

Resources.

3 Provide all DRLs, contracts, and formal reviews.

4. Records of NASA Headquarters (Code Q) oversight of this location. Regards, Jon

Jonathan B. Mullin Manager Operational Safety **Emergency Preparedness Coordinator** Headquarters National Aeronautics and Space Administration Phone (202) 358-0589 FAX (202) 358-3104 "Mission Success Starts with Safety"

jlloyd@mail.hq.nasa.gov, 07:07 PM 2/4/2003 -0500, FW: Former Head of ASAP Sets the Record Str

X-Authentication-Warning: spinoza.public.hq.nasa.gov: majordom set sender to owner-code-q using -f

Reply-To: jlloyd@mail.hq.nasa.gov X-Originating-IP: 68.100.166.170 X-URL: http://mail2web.com/

From: "jlloyd@mail.hq.nasa.gov" <jlloyd@mail.hq.nasa.gov>

To: hc@hq.nasa.gov, Code-Q@hq.nasa.gov

Cc: gary.w.johnson@nasa.gov

Subject: FW: Former Head of ASAP Sets the Record Straight

Date: Tue, 4 Feb 2003 19:07:22 -0500

X-OriginalArrivalTime: 05 Feb 2003 00:07:22.0183 (UTC) FILETIME=[8E304570:01C2CCAA] X-MIME-Autoconverted: from quoted-printable to 8bit by spinoza.public.hq.nasa.gov id TAA17347

Sender: owner-code-q@lists.hq.nasa.gov

>From Gary Johnson at JSC; kind of restores ones faith in people's integrity and sense of fairness. Kind of a shame that Richard was out of the country when the media took off in this direction.

Original Message:

From: JOHNSON, GARY W. (JSC-NA) (NASA) gary.w.johnson@nasa.gov

Date: Tue, 4 Feb 2003 16:10:51 -0600

To: ronald.d.dittemore@nasa.gov, linda.j.ham@nasa.gov, william.j.harris@nasa.gov, mark.d.erminger@nasa.gov, frank.l.culbertson1@jsc.nasa.gov, jlloyd@hq.nasa.gov, john.w.young@nasa.gov, jerry.b.holsomback@nasa.gov Subject: FW: Former Head of ASAP Sets the Record Straight

Glad to see Richard's trying to do the right thing.

- > ----Original Message----
- > From: HASHIMOTO, RICK (REMOTE-JSC)
- > Sent: Tuesday, February 04, 2003 3:59 PM
- > Subject: Former Head of ASAP Sets the Record Straight
- > Former Head of NASA Safety Panel Sets the Record Straight
- > By Brian Berger
- > Space News Staff Writer
- > 03:00 pm ET
- > 04 February 2003
- > WASHINGTON -- Much has been made since Saturday of a comment a
- > member of NASA's Aerospace Safety Advisory Panel made during an
- > April 18 hearing before the House Science space and aeronautics
- > subcommittee.
- > The member, Richard Blomberg, the former chairman of the panel,

jlloyd@mail.hq.nasa.gov, 07:07 PM 2/4/2003 -0500, FW: Former Head of ASAP Sets the Record Str

> told lawmakers that he had "never been as concerned for space > shuttle safety as I am right now." > Less is being made of what he then went on to say. > "That concern is not for the present flight or the next or > perhaps the one after that. In fact, one of the roots of my > concern is that nobody will know for sure when the safety margin > has been eroded too far. All of my instincts, however, suggest > that the current approach is planting the seeds for future > danger." > Blomberg told Space News in a Feb. 4 telephone interview that he > felt his comments had been taken out of context by some media > organizations. > "I clearly was not talking about immediate flight risks," he > said. "I was talking about the long term planning and the fact > that the planning horizon was not realistic if the shuttle was > not going to be replaced any time soon. > Blomberg was in London when the shuttle Columbia disintegrated on > reentry Feb.1. When he returned home Monday night, he was > chagrinned to see that his comments had been taken out of context > by a host of media outlets. > Blomberg has since been trying to set the record straight and has > been deluged with phone calls and interview requests from the > media. > Blomberg also told Space News that he doesn't believe that the > loss of Columbia is due to NASA or its contractors shirking their > commitment to safety. "The safety processes were, if anything, more robust than ever." > he said. > Congressional staffers present at the April 18 hearing also said > they felt Blomberg's comments had been largely misconstrued. They > said lawmakers took from his comments that NASA is not > shortchanging safety today, but that if the agency wishes to > continue flying safely into the next decade, larger investments > need to be made in upgrades. > By November 2002, NASA appeared ready to do just that. An > amendment to NASA's 2003 budget request sent to Congress by the > White House asked that an additional \$470 million be provided for > a space shuttle Service Life Extension Program.

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Asked if the request for additional funds was responsive to the
     > advisory panel's recommendations, Blomberg said: "I'm not a
    > budget expert, so I don't know whether that's adequate, too much
    > or too little - but its certainly in the right spirit".
    > Blomberg also said he does not believe that NASA's dismissal of
    > advisory panel members in early 2002 had anything to do with the
    > group's conclusions. Blomberg, who resigned his position as
    > chairman of the panel April 1, 2001, said that while he did not
    > agree with NASA's conclusion that more turnover in the panel's
   > membership was needed, he said he does not believe NASA was
   > trying to silence dissenting opinions.
   > "People in Washington know you don't silence people by letting
   > them go - it just loosens their tongues," he said.
   > NASA spokesman Bob Jacobs said the decision to replace members of
   > the aerospace safety advisory panel dates back to a 1997 by the
   > U.S. space agency's inspector General expressing concern about
   > the length of service of panel members.
  > In 2001, Jacobs said, a NASA internal report came to the same
  > conclusion. He said the changes in the panel's composition were
  > unrelated to the panel's findings about the space shuttle
  > program.
  > Robert Walker, chairman of the Wexler Group and the former chair
 > of the House Science Committee, said the additional money for
 > shuttle upgrades also reflected a decision by NASA in 2001 to
 > push back the projected retirement date for shuttle from 2012 to
 > 2020 or later.
 > Walker also said he felt Blomberg's testimony had been taken out
 > of context.
 > "What he was concerned about was the talk that NASA was going to
 > continue using the shuttle out to 2020," Walker said. "A lot of
 > us who have looked at this program agreed that in order to have a
> shuttle that operates that you, you are going to have to spend a
> lot of money in upgrades to keep it flying safely."
> Walker said the perspective was different when NASA though it
> would phase out the shuttle around 2012. In that scenario, he
> said, he makes more sense to focus investment on the new
> technologies needed for the new vehicle.
"I don't believe that agency was compromising safety by starving
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illoyd@mail.hq.nasa.gov, 07:07 PM 2/4/2003 -0500, FW: Former Head of ASAP Sets the Record St

> [the shuttle program] for funds," he said. "I spent a year > looking at this stuff and I really don't think that's a > legitimate criticism." > Walker served as chair of the Commission on the Future of the > U.S. Aerospace Industry. The commission's report, delivered to > the White House and Congress in late 2002, recommended an > increased investment in the crumbling ground infrastructure at > Kennedy Space Center and Cape Canaveral Air Station, the United > State's primary launch facilities. > Lori Garver, a former NASA associate administrator for policy and > plans who now consults to the aerospace industry, agreed that too > much was being made of Blomberg's warnings by the media. > "Blomberg did not say it was unsafe now, he said it would be in > 10 years if NASA didn't increase its investment," she said. > "Every single time we fly we believe it is safe or we wouldn't do > it," Garver said. > @ 1999-2002 SPACE.com, Inc. ALL RIGHTS RESERVED.

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James Lloyd, 08:46 AM 2/4/2003 -0500, CAC

X-Authentication-Warning: spinoza.public.hq.nasa.gov: majordom set sender to owner-code-q using -f

X-Sender: jiloyd@mail.hq.nasa.gov

X-Mailer: QUALCOMM Windows Eudora Version 4.3,2

Date: Tue, 04 Feb 2003 08:46:46 -0500

To: prichard@hq.nasa.gov, prutledg@hq.nasa.gov,

Bill Bihner < wbihner@mail.hq.nasa.gov> From: James Lloyd < illoyd@hq.nasa.gov>

Subject: CAC

Cc: code-q@lists.hq.nasa.gov,

"Dr. Michael A. Greenfield" <michael.greenfield@hq.nasa.gov>

Sender: owner-code-q@lists.hq.nasa.gov

Dr. Greenfield is instituting a process for the collection of technical questions and answers and will serve as NASA's technical clearinghouse for release to the outside community. He will be providing details on how this information is to be collected and dispositioned. He has set up an action center (referred to as the CAC) and will chair a meeting each day at 2 pm (location to be provided shortly). Bill Bihner is the Code Q representative and will be attending the meeting starting this afternoon.

I have briefed Dr. Greenfield on our process for providing a list of questions to the CAIB. We will also be involved with supporting Bill Bihner and Dr. Greenfield in developing answers to technical questions where Code Q is the obvious source for the answer. We will also be allowed to review technical answers developed by others as part of the process for Dr. Greenfield's approval for release.

Jim

Camomilli-1, Guy, 08:07 AM 2/7/2003 -0500, RE: Approved One-Page Shuttle Debris Fact Sheet

From: "Camomilli-1, Guy" <Guy.S.Camomilli@nasa.gov>

To: "Jonathan B. Mullin" <jmullin@hq.nasa.gov>,

"Camomilli-1, Guy" <Guy.S.Camomilli@nasa.gov>

Cc: jlloyd@hq.nasa.gov, jlemke@hq.nasa.gov, "Angotti, Cathy" <cangotti@hq.nasa.gov>,

"Barry-1, William" < William.S.Barry@nasa.gov>,

"Gettleman-1, Alan" <Alan.G.Gettleman@nasa.gov>,

"Geyer-1, Bart" <Bart Geyer-1@ksc.nasa.gov>

Subject: RE: Approved One-Page Shuttle Debris Fact Sheet

Date: Fri, 7 Feb 2003 08:07:19 -0500

Importance: high

X-Mailer: Internet Mail Service (5.5.2653.19)

Jon,

It only went to the addressees. I expect that the HCAT will make the appropriate distribution. If you have a distribution that you'd like to send it to, feel free to do so. The only caveat I would make is to advise them that the new "one-pager" is guidance for "lay people".

The other one is for health and safety professional. Also, in using the other one (the 5 pager), please pass along the suggestion that it's up to the health and safety professional in the field to evaluation the situation and apply the "guidelines" as they see fit. This is a must, because there's no way anyone can call the shots from off-site and adequately control all the hazards.

Guy Camomilli, MPH, CSP Senior Environmental Health Officer, OCHMO Tenant Office guy.camomilli-1@ksc.nasa.gov Voice (321) 867-1417 Fax (321) 867-8870

----Original Message----

From: Jonathan B. Mullin [mailto:jmullin@hq.nasa.gov]

Sent: Thursday, February 06, 2003 3:28 PM

To: Camomilli-1, Guy

Cc: jlloyd@hq.nasa.gov; jlemke@hq.nasa.gov

Subject: Re: Approved One-Page Shuttle Debris Fact Sheet

Guy has this gone to all of the response locations? Jon At 01:32 PM 2/6/2003 -0500, you wrote:

>ATTENTION DEBRA ADDE:

>The attached guidelines have been approved by the Chief Health and Medical

Camomilli-1, Guy, 08:07 AM 2/7/2003 -0500, RE: Approved One-Page Shuttle Debris Fact Sheet

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>Officer (Dr. R. Williams) for general dissemination to public service
  >personnel.
 >Please give it a broad distribution from your command post. If you have
 >questions, please don't hesitate to call.
 >Thank you.
 >Guy Camomilli, MPH, CSP
 >Senior Environmental Health Officer.
 >OCHMO Tenant Office
>guy.camomilli-1@ksc.nasa.gov
>Voice (321) 867-1417
>Fax (321) 867-8870
Jonathan B. Mullin'
Manager Operational Safety
Emergency Preparedness Coordinator
Headquarters National Aeronautics and Space Administration
Phone (202) 358-0589
FAX (202) 358-3104
"Mission Success Starts with Safety"
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